ABSTRACT

3D COMPUTER GRAPHICS PROCESSING APPARATUS AND METHOD

In a computer graphics apparatus, a three-dimensional object is modelled using a mesh of triangles which approximate the object surface. To display images, each triangle is sub-divided into smaller triangles, which do not necessarily lie in the same plane as the original triangle. In this way, the curvature of the object surface can be more accurately modelled. A parametric patch, such as a Bernstein-Bezier triangular patch or Heron patch, is used to determine how to divide each triangle into smaller non-planar triangles. In addition, the number of non-planar triangles is determined using the size of the original triangle in the current or a preceding frame of image data. The non-planar triangles are stored for use in subsequent frames which require the same number of non-planar triangles, thereby reducing processing requirements. Rather than carry out lighting calculations for the vertex of each new non-planar triangle, lighting values are calculated and used to define a parametric patch which is subsequently used to determine lighting values for the new triangles.

(FIGURE 2)